CLAIMS

1.   **(Currently amended)** A message device <u>of sending data by reference</u> <u>through a network</u>, comprising:

at least one processor;

a local buffer configured to communicate with an external buffer residing in a an external message device; <u>and</u>

<u>an RNIC component</u> ~~a message sender component~~ configured to facilitate transmitting a first tag-based message to the external message device, the first tag-based message including a portion retained by the local buffer and a remaining portion of the first tag-based message, wherein the <u>RNIC component is configured to:</u>

<u>understand remote direct memory access operations of the external message</u> <u>device; and</u>

<u>conduct data transfer from the local buffer to a storage component of the</u> <u>external message device without the message device and the external message</u> <u>device executing copy instructions for the data transfer from the message device to</u> <u>the external message device</u>

~~remaining portion and a reference to the portion retained by the local buffer are~~ ~~concurrently transmitted to the external message device; and~~

~~a message receiver component configured to facilitate receiving a second tag-~~ ~~based message from the external message device, the second tag-based message~~

includes a reference to a portion of the second tag-based message retained by the external buffer.

2.   (Currently amended)   The message device of Claim 1, wherein ~~each of~~ the first ~~and second~~ tag-based message ~~messages~~ include a body element for including data, the body element of the first tag-based message including the reference to the portion of the first tag-based message retained by the local buffer~~, the body element of the second tag-based message including the reference to the portion of the second tag-based message retained by the external buffer~~.

3.   (Canceled).

4.   (Currently amended)   The message device of Claim 1, wherein ~~each of~~ the first ~~and second~~ tag-based message includes ~~messages include~~ a header element for including control information.

5.   (Currently amended)   The message device of Claim 1, wherein ~~each of~~ the first ~~and second~~ tag-based message ~~messages~~ is sent via a customizable, tag-based protocol.

6-53.   (Canceled).

54. (Currently amended) A method for facilitating tag-based electronic communications, comprising:

employing a processor to execute computer executable instructions stored on a computer readable storage medium to implement the following acts:

transmitting a first tag-based message from a local buffer residing in a local device to an external buffer residing in an external message device, the first tag-based message including a portion retained by the local buffer and a remaining portion of the first tag-based message, wherein the transmitting act includes simultaneously transmitting the remaining portion and a reference to the portion retained by the local buffer to the external message device; [[and]]

receiving a second tag-based message from the external message device, wherein the second tag-based message includes a reference to an external buffer allocated at the external message device and the second tag-based message is an insert request to initiate a transfer of the portion retained at the local buffer of the local device to the external device; and

in response to the second tag-based message, transferring the portion retained at the local buffer of the local device to the external message device via an RNIC component, wherein the RNIC component is configured to

understand remote direct memory access operations of the external message device; and

conduct data transfer directly from the local buffer of the local device to the referenced external buffer of the external message device

without requiring processors of the local device or the external message

device to execute copy instructions of the data transfer

~~a portion of the second tag-based message retained by the external buffer~~.

55.   **(Currently amended)** The method of Claim 54, wherein the transmitting act further comprising ~~including~~ a body element to the first tag-based message, wherein the reference to the portion of the first tag-based message retained by the local buffer is embedded within the body element.

56.   **(Currently amended)** The method of Claim 54, wherein the transmitting act further comprising ~~including~~ a header element to the first tag-based message, wherein control information for the first tag-based message is embedded within the header element.

57.   **(New)** A method implemented by an intermediary for intercepting a first tag-based message from a message sender and forwarding a second tag-based message to a message receiver, the method comprising:

employing a processor to execute computer executable instructions stored on a computer readable storage medium to implement the following acts:

intercepting, via an RNIC at the intermediary, the first customizable, tag-based message from the message sender, wherein the first customizable, tag-based message comprises:

a Uniform Resource Identifier (URI) of a receiver service within the message receiver;

an address of a local buffer within the message sender where a portion of the first tag-based message is retained; and

a steering tag for use by an RNIC of the message sender;

parsing the first customizable, tag-based message to create a staging buffer;

determining that the first customizable, tag-based message is delivering information;

transferring the portion of the first tag-based message retained in the local buffer of the message sender to the staging buffer of the intermediary via an RDMA, wherein the RDMA is a transferring mechanism that contains control information pertaining to a remote direct memory access transfer session and is configured to conduct data transfer without requiring the processor of the intermediary or the message sender to execute copy instructions of data transfer;

changing the first customizable, tag-based message into the second customizable, tag-based message, wherein the second customizable, tag-based message includes an URI of the staging buffer and a reference to the staging buffer of the intermediary where the portion of the first tag-based message is retained;

sending the second customizable, tag-based message to the message receiver;

receiving an insert request from the message receiver, wherein the insert request includes a reference to a buffer allocated at the message receiver to initiate a transfer of the portion retained at the staging buffer of the intermediary to the message receiver; and

in response to the insert request, transferring the portion retained at the staging buffer of the intermediary to the message receiver via an RNIC component, wherein the RNIC component is configured to:

understand remote direct memory access operations of the message receiver; and

conduct data transfer directly from the staging buffer of the intermediary to the referenced buffer of the message receiver without requiring processors of the intermediary or the message receiver to execute copy instructions of the data transfer.

58. **(New)** A method of Claim 57, wherein the first customizable, tag-based message includes a header element that contains the reference to the first buffer, the header element further containing an attribute that is associated with the reference to the first buffer.

59.   (New)   A method of Claim 57, wherein the first customizable, tag-based message includes a body element that uses the attribute to refer to the first buffer.

60.   (New)   A method of Claim 57, wherein the first customizable, tag-based message further comprises a data structure comprising:

a header tag that is indicative of control information, the header tag including a service tag that is indicative of a service for representing the local buffer of the message sender, the service tag including a URI attribute that is indicative of a URI of the service representing the local buffer of the message sender and an identifier attribute that is associated with the service tag; and

a body tag that is indicative of data information, the body tag being capable of using the identifier attribute to refer to service representing the first buffer of the message sender.

61.   (New)   A method of Claim 60, wherein the data structure further comprises a host tag that is indicative of a host at which the local buffer resides.

62.   (New)   A method of Claim 60, wherein the data structure further comprises a port tag that is indicative of a network port through which network communication occurs.

63. (New)   A method of Claim 60, wherein the data structure further comprises a contract tag that is indicative of a contract for defining one or more behaviors of the service representing the local buffer.

64. (New)   A method of Claim 60, wherein the steering tag is indicative of a steering tag associated with a physical address of the local buffer and a length tag that is indicative of the length of the local buffer.

65. (New)   One or more computer readable medium having stored thereon a plurality of instructions that, when executed by a computing device having one or more processors, causes the one or more processors to execute the method as recited in claim 57.

66. (New)   A method implemented by a message receiver for receiving a customizable, tag-based message, the method comprising:

employing a processor of the message receiver to execute computer executable instructions stored on a computer readable storage medium to implement the following acts:

receiving the customizable, tag-based message from a message sender, the customizable, tag-based message comprising:

a steering tag indicative of a physical address of the local buffer of the message sender where a portion of the customizable, tag-based message is retained; and

a length tag indicative of the length of the local buffer of the message sender;

allocating size of a local buffer within the message receiver for the portion of the customizable, tag-based message retained at the message sender to be transferred; and

causing the portion of the customizable, tag-based message retained within the message sender to be transferred to the local buffer of the message receiver via an RDMA, wherein the RDMA is a transferring mechanism that contains control information pertaining to a remote direct memory access transfer session and is configured to conduct data transfer without requiring the processors of the message receiver or the message sender to execute copy instructions of transferring the retained portion of the customizable, tag-based message from the message sender to the message receiver.

67.   (New)   A method of Claim 66, wherein a session service is engaged at the message sender to associate the address of the local buffer of the message sender with the steering tag.

68. **(New)** A method of Claim 67, wherein a session manager service is engaged to create the session service and to destroy the session service once the data transfer is completed.

69. **(New)** A method of Claim 68, wherein the customizable, tag-based message is originated by a sender service, and wherein the sender service invokes the session manager service to initiate the transfer of the information.

70. **(New)** A method of Claim 67, wherein the customizable, tag-based language includes associating the steering tag with a URI of the session service.

71. **(New)** One or more computer readable medium having stored thereon a plurality of instructions that, when executed by a computing device having one or more processors, causes the one or more processors to execute the method as recited in claim 66.